EXHIBIT 29

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

ORACLE AMERICA, INC., Plaintiff, v. GOOGLE, INC., Defendant.	Case No. CV 10-03561 WHA

EXPERT REPORT OF DR. ALAN J. COX

Revised October 21, 2011 and November 25, 2011

my services in this matter at a rate of $560 per hour, and for the services of consultants and researchers at their normal and customary rates.

I have been asked by counsel for Google, Inc. ("Google") to assess the damages to Oracle America, Inc. ("Oracle") from the alleged infringement by Google of certain Oracle copyrights related to the Java platform. Oracle claims to own copyrights in the Java platform that relate to code, documentation, specifications, libraries, and other portions of the platform.[1] As I will discuss in more detail later in this report, Oracle's copyright claim is based on the specifications and implementations of 37 Java application programming interface ("API") packages (the "API claim") and code and comments in 12 files (the "file claim") (collectively, the API claim and file claim are referred to as the "copyright claims"). Additionally, I have been asked to review and critique the Expert Report of Dr. Iain M. Cockburn (the "Cockburn Report"), which was submitted on behalf of Oracle on September 12, 2011 and purported to calculate the damages suffered by Oracle due to Google's alleged copyright infringement. For the purposes of my damages analysis and review and critique of the Cockburn Report, except where noted, I have assumed that Oracle's contentions that its copyright claims are infringed are true.

In the course of my analysis, I have reviewed the documents and other information listed in Appendix B to this report**.**

II. SUMMARY OF CONCLUSIONS

Assuming, for the sake of argument, that Google infringes the material covered by Oracle's copyright file claim and API claim, I reach the following conclusions:

- The material covered in the file claim appears to have little or no value. A damage award for the alleged infringement of that component of the copyright claim would be economically inappropriate. The low value is demonstrated by the fact that the allegedly wrongfully used code has been removed from the Android architecture without any apparent effect. Google apparently had very close non-infringing substitutes readily at hand. Oracle did not suffer, and Google did not gain, from the use of the material covered by Oracle's file claim.

- The success of Android can be explained by factors that are unrelated to the alleged use of the API component of Oracle's copyright claim. These include:

[1] Amended Complaint for Patent and Copyright Infringement; October 27, 2010; p. 3, ¶ 11.

Even if I were asked to assume there was a lost license fee, I disagree with Dr. Cockburn's conclusions regarding the value of that license. I provide a more complete analysis of the licensing landscape below.

In the following sections, I will address damages in this matter due Google's alleged infringement of material covered by Oracle's API claim, since I have already determined that evidence indicates that the material covered by the file claim were easily replaced or worked around and therefore had no value. I describe the relative importance of the material covered by the alleged API claim with the contribution of Google's efforts and resources. I also consider other factors that had an impact on Google's success. Given the overwhelming importance of these other factors, I find that a reasonable remedy for Oracle's API claim is also an award of zero damages. However, I review Dr. Cockburn's copyright damages. Without accepting that a damages award is appropriate, I make adjustments to his calculations that lead to much more reasonable, though still high, damages.

I will address each of the three damages theories on which Dr. Cockburn has opined in his report – Google's allegedly wrongful profits attributable to the purported infringement, Oracle's actual lost profit damages, and Oracle's lost license fee. For each damages theory, I will address both my opinions on damages as well as my critique of Dr. Cockburn's calculation of damages.

A. Reasons for the Success of the Android Platform

I now review some of the elements of Android's success that are due to Google's contributions. The evidence demonstrates that the success of the Android architecture is almost entirely, if not entirely, due to Google. At the very least this evidence, weighed against the evidence provided by Dr. Cockburn, indicates that Dr. Cockburn's measure of the contribution of the API claim is too speculative to merit an award of damages.

programmers who tend to create the most interesting, forward-thinking applications do not like or want to use the Java programming language, because it is considered obsolete.[87]

There are other ways in which the use of Java has been a hindrance to developing Android applications. Far from enriching the Android developer community, Java developers hampered the development of good applications for Android by creating shoddy clones of their Java applications for other platforms, including the iPhone, rather than taking the time to create a functional Android-specific application.[88]

4. Google Had Good Non-Infringing Alternatives to the Material Covered by Alleged API Claim

As discussed in the previous sections, Android's success was attributable to many factors other than the purported benefits derived from Google's use of the 37 API packages. This significantly limits the amount of Google's profits that are attributable to any possible benefits derived from the use of the APIs. Furthermore, Google also had a good non-infringing alternative to the APIs. This further reduces the benefits, if any, that are attributable to Google's alleged copyright infringement.

Google's non-infringing alternative would have been to use a programming language other than the Java programming language as the main applications programming language for Android. There are many other potential languages—C++, Objective C, C, Python, JavaScript, etc.—that Google could have used.[89] Had Google chosen a language other than the Java programming language, it would not have needed to incorporate any Java APIs and thus would have avoided the alleged infringement of the API packages.

During the development of Android, Google used C++ as an applications programming language in addition to the Java programming language.[90] At some point a choice of a primary programming language had to be made. The choice of the Java programming language over C++ was not an easy nor obvious choice since C++ was a very close, possibly superior,

[87] Interview of Tim Bray.

[88] Interview of Tim Bray.

[89] Interviews of Andy Rubin, Dan Bornstein, Brian Swetland. See also August Report ('104 Patent) ¶ 194; August Report ('205 Patent) ¶¶ 256-259; Davidson Report ¶ 146; Parr Report ('520 Patent) ¶ 139.

[90] Interviews of Andy Rubin, Dan Bornstein, Brian Swetland; Bornstein 7/22/2011 Dep., p. 184.

accused of infringement). I understand that Android phones use the Dalvik virtual machine only about a third of the time, when they are running the Java-language applications that have been converted to bytecode. Applications written in native code, which I have shown are the majority of the most popular applications, use technology that is not accused of infringing. Similarly, making phone calls, or browsing the Web, or any number of other activities, do not use technology that is accused of infringing Oracle's API claim. Moreover, the 37 API packages at issue are only a portion of the 150 API packages in the Android core libraries. Many of the other API packages—the ones not at issue—address important functions, such as interacting with the user via a touch screen.

B. Google's Allegedly Wrongful Profits Derived from the Android Platform

1. Overview

The previous review of just some of the large amount of evidence indicates that Google's efforts, business decisions, and brand drove the success of the Android platform. This evidence also demonstrates that the contribution of the material covered by Oracle's API claim provided little in value compared to the elements contributed by Google to the success of the platform. Consequently, a low or zero damage for the alleged copyright infringement is appropriate.

In light of this finding, I now turn to a review of Dr. Cockburn's damage analysis of Google's allegedly wrongful profits attributable to the purported infringement, Oracle's actual lost profit damages, and Oracle's hypothetical license fee.

Dr. Cockburn states that, when calculating allegedly wrongful profits attributable to the purported infringement damages in a copyright infringement case, it is the burden of the plaintiff to prove only the alleged infringer's revenue as the basis of a damage claim and that it is up to the alleged infringer "to prove his or her deductible expenses and the elements of profit attributable to factors other than the copyrighted work."[106] Dr. Cockburn claims, in his determination of Google's allegedly infringing revenues, the entire amount of what Google reports on its Android Profit and Loss statements as Gross Android Ad Revenues, Nexus Phone

[105] Interviews of Andy Rubin, Dan Bornstein, Brian Swetland.

[106] 17 U.S.C. § 504(b)

As Dr. Cockburn notes, Google is also entitled to deduct from the revenues and profits credited to the Android platform the contributions attributable to factors other than the material covered by the copyright claims. I have already discussed some of the factors that account for the success of Google's Android platform. The evidence indicates that the "elements of profit" attributable to Google's contribution is so large and significant that the contribution of the allegedly copyrighted material provided very little, if any, in additional profit to Android. In fact, Dr. Cockburn has already conceded this point, finding that Oracle's copyright contribution to revenue is 15 percent,[123] though a more reasonable estimate of the appropriate amount, given the evidence I have reviewed, is zero or close to it.

However, for the sake of argument, having compiled the extensive evidence of the "elements of profit" that are contributed by Google, I utilize Dr. Cockburn's copyright apportionment percentage to further adjust the claimed "allegedly unjust enrichment attributable to the purported infringement." I first deduct Dr. Cockburn's estimate of Google's contribution from each step of the deductions described in the previous sections. This is accomplished by merely multiplying each cumulative result in Exhibit 2a by the 15 percent copyright apportionment percentage, shown in column (4) of Exhibit 2a. It shows that, if it is determined that the only costs appropriately deducted from Google's revenue are Cost of Sales, Marketing, and Product Management, then the appropriate measure of allegedly wrongful profits is $32.4 million. I should emphasize that it would not be economically appropriate to limit deductions to those three items, since the remaining costs represent the value of resources that were deployed in order to bring Android to the market.

Dr. Cockburn's assertion that he finds that the contribution of Oracle's API claim to be 15 percent of Google's incremental mobile advertising net revenues does not actually reflect his full range of results. He also reports a much lower percentage of lost market share that he attributes to the use of the material covered in Oracle's API claim. As I discuss below in describing my preferred measure of allegedly wrongful profits, Dr. Cockburn should have used a market loss that reflected the full range of his results, such as a mid-point. The mid-point of his estimate of the contribution of the material covered by Oracle's API claim is, as I describe

[123] Put another way, Dr. Cockburn has already conceded that factors other than the copyrighted material contributed 85 percent of the revenues associated with Android.

2. Apportionment of Google's Allegedly Wrongful Profits Attributable to Copyright Infringement

a. Introduction

To recap: in the penultimate and earlier sections, I have accounted for appropriate costs to deduct from Google's total revenues earned from the entire Android platform in order to calculate its profits to date. Google's allegedly wrongful profits attributable to the purported copyright infringement through September 2011 are zero on the basis of these calculations. In earlier sections, I also addressed the possibility that it is found that some of the indirect operating expenses should not be deducted for purposes of calculating allegedly wrongful profits on the entire Android platform, resulting in positive profits. (From an economic point of view, however, it would be appropriate to deduct all the costs that I deduct from revenue.) I have determined that any resulting profit associated with the entire Android platform is due to factors other than the API claim. The ready availability of obviously acceptable non-infringing alternatives also provide basis that the "element of profit" that is attributable to the allegedly infringed API claim contained in the Android framework is very small or zero. This is consistent with actual events since it explains why Google was unwilling to enter into a license agreement with Sun. It also explains why the choice of programming language was difficult.

However, even if, for the sake of argument only, there were some basis for awarding wrongful profits, Dr. Cockburn's estimate of damages is an unreliable indicator of the appropriate remedy. This is the case even if Dr. Shugan's results can be relied upon. In the remainder of this section I will correct Dr. Cockburn's estimate of allegedly wrongful profits, accepting, for the sake of argument, Dr. Shugan's estimate of incremental market shares that results from the 37 API packages. Since profits are derived from generating revenue, I first calculate the range of alleged increase in revenue that result from Dr. Cockburn claimed impact of the 37 API packages. From that I calculate the incremental profits that Google allegedly received unfairly as a result of the 37 API packages.[130]

[130] Dr. Cockburn does the calculations I talk about in this section on the basis of net revenue after deducting TAC. Since percentage results do not change whether we are doing this after or before deducting TAC, I ignore this distinction for the purpose of calculating percentages.